

Swan Lake NWR - Narrative Report -  
1969

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Narrative Report  
Swan Lake National Wildlife Refuge  
January - December, 1969

PERMANENT PERSONNEL

Robert H. Timmerman .....	Refuge Manager
Lawrence G. Kline ..... Transferred 8/8	Asst. Refuge Manager
Bennie M. Hull .....	Biological Technician
Marvin F. Lentz .....	Refuge Clerk
Benny N. Howerton .....	Operator General

TEMPORARY EMPLOYEES

Floyd A. Holland .....	Laborer, Farm
Roy T. Warren .....	Laborer, Farm
Ervin Windsor .....	Laborer, Farm

## I. GENERAL

A. Weather Conditions

	<u>Month</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>Normal</u>	<u>Snowfall</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>2.36</u>	<u>1.64</u>	<u>6.00</u>	<u>50</u>	<u>-5</u>
February	<u>.83</u>	<u>1.79</u>	<u>2.00</u>	<u>50</u>	<u>9</u>
March	<u>1.14</u>	<u>2.57</u>	<u>-</u>	<u>77</u>	<u>10</u>
April	<u>7.22</u>	<u>3.72</u>	<u>-</u>	<u>79</u>	<u>33</u>
May	<u>7.85</u>	<u>4.52</u>	<u>-</u>	<u>91</u>	<u>38</u>
June	<u>11.34</u>	<u>4.87</u>	<u>-</u>	<u>91</u>	<u>44</u>
July	<u>7.30</u>	<u>3.92</u>	<u>-</u>	<u>97</u>	<u>63</u>
August	<u>2.98</u>	<u>3.67</u>	<u>-</u>	<u>92</u>	<u>56</u>
September	<u>5.60</u>	<u>4.88</u>	<u>-</u>	<u>87</u>	<u>43</u>
October	<u>6.67</u>	<u>2.72</u>	<u>-</u>	<u>87</u>	<u>42</u>
November	<u>.21</u>	<u>2.32</u>	<u>.45</u>	<u>71</u>	<u>16</u>
December	<u>.94</u>	<u>1.65</u>	<u>8.25</u>	<u>57</u>	<u>12</u>
Annual Totals	<u>54.44</u>	<u>38.27</u>	<u>16.7</u>	Extremes <u>97</u>	<u>-5</u>

This data was collected from the weather station at Fountain Grove, located about eight miles north of refuge headquarters.



## A. Weather Conditions

The total precipitation was 54.44 inches which is 16.17 above 38.27 which is normal for this area. The bulk of the excess moisture was received during the planting and growing season. Precipitation during each of the three months April, May and July exceeded seven inches. We received 11.34 inches of rain during the month of June. No excessive amounts of snow fell during the year.

Temperatures were quite moderate with no extended periods of heat or cold.

## B. Habitat Conditions

### 1. Water

This we had plenty of during 1969. We went into the year with all impoundments at or near proposed levels. By passing considerable amounts of water through the refuge we were able to maintain fairly desirable levels until during the summer. During June and July there was just more water than we could handle. With all valves open, water started flowing over the Silver Lake emergency spillway on June 27 and continued to flow until July 17th. The greatest flood on the Grand River was a crest of about 36' at Summer on July 12th. This flood took all of our crops except about 200 acres on high ground near headquarters. The Grand River had been out of its banks thirteen times when we quit counting.

### 2. Food and Cover

The following table compares food production during the past fifteen years.

Foods Available For Waterfowl 1955-1969

Year	Bushels of Grain*	Acres of Wheat	Acres of Legumes	Acres of ** Moist Soil Foods
1955	11,450	718	-	400
1956	27,330	712	-	400
1957	29,800	967	-	400
1958	4,920	1,276	15	400
1959	34,750	979	212	2,000
1960	16,000	1,250	204	2,285
1961	21,180	223	638	2,200
1962	26,280	687	478	2,200
1963	52,600	667	525	2,200
1964	29,240	775	427	2,200
1965	86,300	660	250	2,200
1966	69,000	1,125	383	2,200
1967	35,000	1,150	-	2,200
1968	101,200	1,124	308	2,200
1969	25,000	2,000	30	1,800

\*This includes corn, milo and rice. \*\* Includes mainly wild millet, chufa, tame millet, and smartweed.

We knew we were short of other foods this year and tried to remedy it somewhat by planting more wheat. The wheat was planted early enough to make good growth before the geese arrived. We felt that at least wheat we would have plenty of. The geese really hit it hard and all fields, including those in the hunting zone look pretty black at this time.

We were never able to get Swan Lake drawn down so practically no moist soil plant food was produced there. Some areas in Silver and South Lakes that are normally too dry for good food production had excellent stands of wild millet and smartweed. By altering our water management plans slightly we were able to make much of this available.

Upland vegetation grew rank and tall. We were unable to get much of it mowed, and we probably have more cover than is desirable in the prairie chicken area. Reed's Canary grass continues to invade areas of more desirable vegetation.

## II WILDLIFE

### A. Migratory Birds

#### Ducks and Coots

At the beginning of the year we had a wintering population of about 1,000 mallards. This number fluctuated during the remainder of the winter with the birds moving back and forth between here and the Missouri River. The mallard population increased and they were joined by lesser numbers of most other species in late February. Mallards peaked during the third week of March at 45,000. The total duck population also peaked during this same week at 56,650.

Our summer population was estimated at 350 wood ducks, 20 mallards, and 20 blue-winged teal. Only a few wood duck broods were observed.

Fall duck use can be classed as light. The early migrants arrived at about the usual time but in limited numbers. We had no moist soil plant food in Swan Lake but there was an abundance of it in the river bottoms so they stayed where the food was. Mallards peaked at only 55,000 during the first week in November. They too found conditions more attractive elsewhere. Divers were abundant only for a few days during the last week in October when about 40,000 lesser scaup rafted on Swan and Silver Lakes.

This years total duck use was 5,735,905. This compares with 7,467,215 in 1968, and 7,805,455 in 1967.

Coots peaked at 7,500 during the spring and 10,000 during the fall. Total use days for the year was 380,030. This shows an increase from the 275,975 days use recorded in 1968, but is still way down from the 816,270 recorded in 1967.

## Geese

The year began with 50-90,000 Canada geese using the refuge. The number varied with the weather. When the weather turned cold many of them moved to the Missouri River and Dalton Cut-Off, but they moved back as soon as conditions moderated. There never was a spring build-up, which probably indicates that most of the flock was wintering in this area. Most of the geese left during the end of March and early April, but a few hung on into May before leaving. About 200 geese spent the summer here.

The fall migration began September 22nd. with the arrival of about 100 Canada geese. We picked up another 4-5,000 on the 24th and 25th. A few more birds arrived almost every day during the remainder of September. The population continued to build up throughout October with heavier migrations noted on the 7th and 8th and again from the 10th thru the 13th. The estimated peak population count of 110,200 Canada geese was made October 26th. Canada goose use days totaled 13,308,400 for the year.

Blue and snow geese fluctuated in numbers ranging up to 1,500 during the winter and spring period. The peak fall population of 23,000 was reached during the middle of November. They made no use of the refuge late in the period, but some stayed in the vicinity of the Missouri River. Total days use for the year was down to 603,890.

White-fronted geese peaked at about 250 during the spring and 300 during the fall. Peak fall use occurred during mid-October with no use recorded after early November. A total of 9,730 use days was recorded for the year.

The following table compares waterfowl use for the months of September through December for the last fifteen years.

Year	<u>Number of Days Use</u>				<u>Totals</u>
	<u>Canada Geese</u>	<u>Other Geese</u>	<u>Ducks</u>	<u>Coots</u>	
1955	4,692,100	170,100	7,691,500	90,800	12,644,500
1956	3,390,300	354,900	4,097,700	52,700	7,895,600
1957	2,449,000	36,300	4,289,300	32,450	6,807,050
1958	2,505,700	198,600	2,131,400	14,500	4,850,100
1959	3,364,825	468,489	4,363,621	373,800	8,570,735
1960	5,738,300	358,610	3,400,925	317,435	9,815,825
1961	4,546,580	428,953	4,393,500	85,750	9,454,783
1962	7,113,600	657,300	1,344,360	107,100	9,222,360
1963	8,831,375	969,920	4,677,750	230,300	14,709,345
1964	7,980,700	687,050	4,931,220	175,350	13,774,320
1965	9,122,400	831,180	5,845,560	321,440	16,120,580
1966	11,272,800	1,684,340	6,979,630	398,650	20,335,420
1967	9,774,800	1,578,570	5,792,395	444,500	17,590,265
1968	9,576,700	1,063,825	4,691,960	126,350	15,458,835
1969	6,962,200	547,470	3,948,980	229,110	11,687,760

Our population figures are based on weekly aerial counts made by Dick Vaught of the Missouri Department of Conservation during the fall and early winter. Ground counts are used for the remainder of the year.

See pages 5A and 6A for comparative goose counts on Canada Geese.

#### Waterbirds

Twenty white pelicans were first seen on April 4 and the population reached a spring peak of 200 on April 15th. The fall peak of 1,200 was reached September 20th.

Sora rails were scarce due to lack of attractive habitat.

Double-crested cormorants reached a peak of 60 during April, but were scarce during the fall.

#### Shorebirds, Gulls, and Terns

Nothing unusual.

#### Doves

This area provides a considerable amount of fairly good dove shooting during years when corn fields are harvested for silage early enough to attract and concentrate the birds. This was a late fall for harvesting and most of the birds moved on through without concentrating.

#### B. Upland Game Birds

The bobwhite population is good despite the floods and wet nesting conditions. An ice storm in late December probably made food a little hard to find, but no mortality was noted.

A few pheasants are still hanging on in the area north of the refuge. Several sightings were made along the north and east boundary.

Several prairie chicken sightings were made during spring and early summer. This is very encouraging as none had been seen or heard for several years. On May 19 a pair were observed in the field west of the pecan grove. One was seen on several occasions at the Merlin Clark farm and his hired man reported seeing at least one young one. A single bird was also seen on the J. C. Dowell farm which is located only about a mile from the area we are maintaining and improving for chickens. The State is attempting to trap birds for us at Whitman Air Force Base where they create a hazard to jet aircraft. We understand that they are also trying to get some chickens from Oklahoma, but don't know the status of this. Although there is no major success as yet, there is at least some reason for encouragement.



SWAN LAKE COMPARATIVE POPULATION COUNTS

CANADA GEESE

<u>Date</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Sept.	2,500	2,500	107	620	100	230	150	8,000
Oct.	55,000	4,600	3,675	41,000	12,650	50,500	24,750	13,329
	96,000	54,850	21,500	44,000	46,350	73,500	48,275	17,628
	133,500*	35,180	36,500	48,000	46,130	86,850*	73,600*	74,300
	96,000	35,000	No Count	54,000*	52,000	81,000	70,955	84,000
							70,300	93,000
Nov.	90,000	55,000*	42,000	41,000	57,000*	55,500	71,600	107,950
	No Count	55,000	34,000	31,700	53,555	50,000	62,465	95,000
	57,000	41,000	22,000	19,365	33,905	51,530		118,200*
	49,000	35,000	20,000	19,395	37,055	42,500		
Dec.	21,000	36,000	23,000	14,000	34,620	No Count	54,900	95,200
	15,000	31,745	18,000	20,000	No Count	29,133	39,500	102,500
	12,000	12,000	18,000	20,000	No Count	No Count	38,550	60,900
	28,000	Mo. River						

\* Peak Populations



SWAN LAKE COMPARATIVE POPULATION COUNTSCANADA GEESE

<u>Date</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Sept.	1,800	50,025	32,050	35,065	29,450	No Count	9,150
Oct.	33,725	85,150	57,650	76,425	50,245	43,250	13,700
	72,895	99,050	90,350	97,525	74,125	88,775	87,050
	111,800	121,450*	106,650	102,775	105,500	81,050	97,500
	130,225*	115,200	No Count	124,400	No Count	88,100	110,200*
	115,300	No Count	No Count	138,000*	122,200	110,585	
						113,080	
Nov.	122,000	119,000	89,980	137,050	118,965	137,500*	108,200
	101,650	76,000	119,350*	126,900	127,265*	125,050	102,860
	98,700	88,000	79,750	104,350	108,600	126,475	105,460
						115,350	93,300
Dec.	124,150	45,530	82,250	No Count	106,605	No Count	98,770
	84,650	45,230	110,250	No Count	No Count	122,730	
	56,500	54,065	104,650	123,160	No Count	No Count	82,450
			86,555				

\*Peak Populations



### C. Big Game Animals

The white-tailed deer herd consists of an estimated 325 animals. It may be increasing slightly but seems to be remaining quite stable. There was a bucks only season this year, and it will be followed by an any deer season next year.

During the winter the deer have concentrated to feed in a small clover field along the highway south of secondary headquarters. Some could be seen there at almost any time during the day, but the best time was just before dark when as many as 70 or 80 could sometimes be counted. People drove from quite a distance just to see the deer.

We continue to have quite a few road kills along the north and east side of the refuge. There would be many more accidents except that local people are aware of the hazzard and drive with caution.

### D. Fur Animals, Predators, Rodents and Other Mammals

Allen Dysart of Sumner was again allowed to trap on the refuge as a raccoon control measure. He concentrates on raccoon, but is allowed to keep all fur that he catches. During the period 12/1/69 to 1/15/70 his take consisted of 138 raccoons, 7 opossums, 8 muskrats, 1 mink, 2 coyotes, 2 feral cats, and 3 stray dogs. The raccoon population appears to be down slightly, and Mr. Dysart reported a die-off in a portion of the South Pool area.

The coyote population is increasing in the general area. Judging by the number of tracks the population is up on the refuge also. However, the manager has seen only four during his travels on the area. Mr. Dysart was allowed to do a limited amount of coyote trapping during the raccoon removal program so we could say that we were doing something to control them.

Foxes seem to be very scarce. Not one red fox was observed during the entire year, but I did see a gray fox on No. 1 levee.

Cottontails are not nearly as numerous as they have been for the past several years. Hunters report practically no rabbits in some areas and only a fair population in others.

Fox and grey squirrel populations remain high along Yellow Creek in the south part of the refuge. There is still not enough demand to justify the expense of a managed hunt on the refuge.

### E. Hawks, Eagles, Owls and Crows

Our eagle population probably peaked at 60-70 in early December. I counted 34 at one time from a point on No. 5 levee on December 14. When the goose season ended and food was not so readily available on the refuge many of the eagles either left or foraged in the Grand River

bottoms. Only 29 eagles were counted during the mid-winter inventory on January 5, 1970.

We had three crippled eagles this year. A golden eagle in very poor condition from a shot wound at the base of a wing that was brought up by GMA Sanders died and was sent to Patuxent. An adult golden brought up by GMA Basler and an immature bald that we picked up north of Avalon were banded and released on the refuge December 14. The golden was apparently fully recovered and flew off to light in a tree. The immature bald eagle could not fly very well, but was released in an area where plenty of food was available. This bird has still not regained full power of flight, but seems to be getting along all right. We have in the past felt that an eagle would probably remove these soft lock-on bands. The band has been on this bird for about two months now, so maybe they will stay on.

Nothing unusual to report on hawks, owls, or crows.

#### F. Other Birds

We somehow neglected to report it where it should have been so rather than leave it out entirely we will report our observation on little blue herons under this category. These birds are quite common at Squaw Creek but none had been recorded here for several years. The first three were seen on July 6 and the refuge population built up to about 50 during the month.

#### G. Fish

The refuge was open to fishing March 1 through September 20 this year. The extension from September 10 to the 20th did not interfere with anything and we have extended the season to September 30 for 1970.

Channel catfishing started off rather slow with the opening of the season, but by the middle of March had improved considerably. The season as a whole could be considered as better than average. We had an awful lot of water to pass on through. Almost always when there is water running someone is going to catch fish.

There was no seining season for removal of rough fish. We were never able to get the water low enough for this to be successful.

#### H. Disease

We have practically nothing to report under this heading. Six dead Canada geese were picked up on Swan Lake prior to the season opening and taken to the University of Missouri. Cause of death could not be determined. A few lead poisoned mallards and geese were to be found late in the year, but no serious loss occurred.

### III REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

Practically no work was done this year that could be placed in this category. We were kept busy just trying to keep up with the necessary work.

All equipment and vehicle repair and maintenance is performed in the refuge shop. This can be quite a chore with the amount of farm equipment that we operate.

Slides were repaired on No. 3 levee, the K-lane ramp was rebuilt, and the patrol road repaired following the flood.

#### B. Plantings

This was not the year for farming at Swan Lake. The spring started off bad with the ground not working right and the soils wet and sour. We finally did get 260 acres of clover planted but gave up on the remainder we had planned. We were able to work in the fields on the average of about one day a week during April. We finally started planting corn on May 19 and finally finished planting 700 acres on June 16. All of this corn was planted under very poor conditions, but we had a surprisingly good stand. We would have been a lot better off to have let the tractors set and the seed stay in the sack. When the flood waters started to recede July 12 we were left with only about 200 acres of corn and 30 acres of clover.

What can you plant in late July to produce grain for goose food? We asked this question of everyone that we thought might be able to answer it (and even some that we didn't think could). We will try to give a summary of what we did and the results.

We planted TX68, a short season 68 day corn produced by the Trojan Seed Company. We started planting on July 22 and finished on July 25. This corn jumped off to a very fast start and looked real good until the fall army worms hit it. They really hit it hard with several worms in each stalk. We did manage to salvage some by spraying with Sevin. Some we couldn't get sprayed in time and some that was double rowed and couldn't be ground sprayed was a total loss. The best of this corn produced about 35 bushels of reasonably firm corn to the acre in spite of the worm damage. I would sure like to have seen what it would have done without the worms.

We were almost certain that it was too late for regular milo, but decided to try a small amount if only to document the results. We drilled some of the shortest season milo seed we could obtain on July 22. A good stand resulted and it looked beautiful, but the frost hit it before it could set seed.

Mini-milo 50A, a product of Northrup King, was drilled at the rate



of 10 lbs./acre on July 22 and 26. This small-seeded milo only takes about 45 days from emergence to bloom. The army worms moved into this in August and it looked as though it might be a total loss. However, these plants put out a lot of tillers and went ahead to produce a crop. Seed production was estimated at 50 bu./acre. If we had known how good it was going to do we would have had 500 instead of only 100 acres. It should be noted that this land had been fertilized for corn with 100 lbs. nitrogen and 100 lbs. 8-32-16 starter fertilizer to the acre. We weren't too sure how waterfowl would react to this crop. We found that there was nothing to worry about. Heavy rains put some surface water on about 80 acres of it and both ducks and geese completely consumed it in about four days. Mini-milo on better drained fields was taken at a slower rate but completely utilized by geese.

German millet was drilled on July 28-29. This did not germinate well and produced a low yield. Geese did eat what seed there was, but probably got as much good out of the weeds as they did the millet. Part of this land had received 100 lbs. nitrogen/acre but did not seem to increase the yield.

Jap millet was aerially seeded on July 25. We could not control the water level and most of this ground became too dry later in the summer. A good stand and fair yield resulted in the wetter areas. Food production was increased by volunteer wild millet and smartweed.

Some fields were planted three times this year with the end result only wheat for browse. An estimated 730 acres of row crop and 230 acres of clover were planted and lost. It would be much cheaper just to buy the feed if this were to happen very often.

The State helped us considerably with men and equipment during the hectic planting season. The drilling of 2,000 acres of wheat was a joint effort by State and Federal personnel and was completed early enough to provide a good supply of green food.

#### C. Collections and Receipts

We had made arrangements to get all our seed wheat from Clarence Cannon Refuge. However, this 1,200 bushel was not enough when we decided to increase the wheat acreage. One additional Semi-trailor load of 780 bushels was obtained from DeSoto.

Several loads of surplus corn and wheat were hauled from Squaw Creek for trap bait and feed. Corn was also obtained from the Department of Agriculture for emergency feed, but this will be covered in detail in the next section.

#### D. Control of Vegetation

About 500 acres of corn was band sprayed with atrazine at a 1 lb. per acre rate. Results were good. However, some of the fields that

were sprayed were flooded out and later planted to wheat. The atrazine also did a pretty good job of controlling the wheat in the bands that were sprayed.

Roads and levees were mowed to control woody vegetation and to allow them to blow free of snow in the winter.

E. Planned Burning

Levees were burned in the spring to control woody vegetation. An attempt was made to burn the area between Turkey and Elk Creeks south of the highway for brush control, but the fire was not hot enough to do much good. All the burn areas were too wet.

F. Fires

Fire danger was low and no fires occurred.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Canada Goose Banding

The first catch of about 175 Canada geese for the start of the pre-season sample was made on October 2nd. It didn't take us long to realize that something was wrong with the age composition of the flock. We were catching very few immature birds. During the pre-season trapping we banded 1,329 adults and only 101 immatures for a young to adult ratio of .076. During this period we also had 404 retakes which were probably also adults. If these had been figured in the age ratio would be even worse.

We had planned to fluoroscope 1,000 immatures both pre and post-season, but these plans had to be abandoned because we just couldn't catch enough immature birds for a significant sample.

The post-season banding sample of 2,043 geese was completed in the record time of only four days. We tried to get the sample fairly well divided between the two trap sites. We took 1,081 on the Silo site and 962 on the White Barn site. We caught 413 previously banded geese during this period. The birds banded consisted of 1,840 adults (1,001 male and 839 females) and 203 immatures (112 male and 91 females). This gives us a post-season young/adult ratio of .110 which is only slightly better than the .076 pre-season ratio. Here again the ratio would be lower if retakes were figured in. Retakes are not used because these birds were not aged and sexed.

Some interesting observations were made on foreign bandings and color markings. Several of the geese banded by Al Pakulak on Cape Churchill were trapped here and he caught quite a number of our banded geese on the Cape. One of the geese painted red at Horicon was shot here on November 16 and one that was neck banded there in 1968 was

trapped here. At least two and probably more Agassiz marked geese were seen. At least 20 observations of neck bands put on by Dennis Raveling in southern Manitoba during the past two summers were made this fall. This is the middle of February and we continue to observe new Raveling bandings.

We failed to catch a single blue or snow goose this year.

All our trapping and banding is done in cooperation with the State. Steve Jeffries and Mike Armbruster were the two men provided for trapping and road blocks this year. Mike was an exceptional worker and should have no trouble finding a future in the wildlife field. He is back in school at the University of Missouri at this time where he has about three semesters of course work to complete for a B.S.

#### B. Emergency Feeding Program

Way back as early as August we realized that we would probably have goose depredation problems because of a lack of food production on the refuge. The farmers around the refuge had just as hard a time getting a crop planted as we did. There was no crop at all on most of the bottomland, but much of the higher ground was finally planted and the harvest would be late. Several discussions were held during the fall as to what to expect and what could be done. Some State men wanted to start feeding as soon as the geese arrived, but we felt that this was not necessary as we had a good supply of wheat browse on the refuge. The weather was wet during October and practically no harvesting was done in this area.

The goose season opened on October 20 with a kill of 2,576 during the first two days. This was the quietest opening in years which was partly due to a week day opening and partly due to a predominately adult population of geese. Then instead of dropping off quite rapidly, as the kill usually does, it hung up at about 600-700 kill per day. The kill the first Saturday during the season was higher than the opening day kill. The weather remained wet and practically no harvesting was completed. The moon was full on the 25th and the geese started feeding heavily at night. There was no real depredation problem, but the potential was there and it felt like sitting on a powder keg waiting for it to explode. On October 30 Morgan, Sanders, Vaught, Milonski and Timmerman got together to discuss feeding to control the kill and prevent depredations. Supervisor Morgan called our recommendations to the regional office and they approved feeding but no manipulation of crops. They requested 30,000 bushels of CCC corn from the Department of Agriculture for depredations control. The following day by day report during the feeding period is documented to show what was done and the results.



<u>Date</u>	<u>Bushels Fed</u>	<u>Zone Goose Kill</u>	<u>Remarks</u>
Fri Oct 31	25 corn and wheat mixed	702	Grain scattered in small amounts at several locations.
Sat Nov 1	-	613	Grain was not eaten, so no more was added.
Sun Nov 2	25 corn and wheat mixed	489	Grain was taken at one location so more was put out.
Mon Nov 3	220 corn and wheat mixed	285	Grain was being taken at all four locations so more was added.
Tues Nov 4	430 corn	271	Corn provided by the State.
Wed Nov 5	435 corn and wheat	401	State provided corn - wheat from Squaw Creek.
Thurs Nov 6	1125 corn	370	This was CCC corn hauled from Carrollton as will be all the feed from this date on.
Fri Nov 7	675 corn	325	Geese using grain freely now.
Sat Nov 8	450 corn	528	-
Sun Nov 9	675 corn	454	Weather conditions drier and some harvesting being done.
Mon Nov 10	675 corn	179	Two State drivers started hauling corn full time. Some being fed and some put in storage at Summer.
Tues Nov 11	675 corn	232	-
Wed Nov 12	900 corn	232	-

<u>Date</u>	<u>Bushels Fed</u>	<u>Zone Goose Kill</u>	<u>Remarks</u>
Thurs Nov 13	675 corn	186	Harvest progressing nicely but all corn having to be dried.
Fri Nov 14	840 corn	134	-
Sat Nov 15	890 corn	244	-
Sun Nov 16	660 corn	238	Total goose kill now 15,048.
Mon Nov 17	450 corn	230	Decided to cut back on feeding to test reaction of the geese.
Tues Nov 18	430 corn	243	-
Wed Nov 19	460 corn	249	Geese feeding heavily in fields out a few miles from the refuge away from heavy hunting pressure.
Thurs Nov 20	390 corn	281	-
Fri Nov 21	440 corn	143	Hunting pressure way down.
Sat Nov 22	220 corn	461	-
Sun Nov 23	220 corn	384	-
Mon Nov 24	220 corn	81	Very bright moon Sunday night.
Tues Nov 25	230 corn	65	Harvest estimated 90% complete.
Wed Nov 26	230	106	Geese feeding mainly at night.
Thurs Nov 27	-	251	-

<u>Date</u>	<u>Bushels Fed</u>	<u>Zone Goose Kill</u>	<u>Remarks</u>
Thurs Nov 27	-	251	-
Fri Nov 28	230	214	-
Sat Nov 29	230	153	-
Sun Nov 30	-	102	Nights still bright.
Mon Dec 1	245	47	-
Tues Dec 2	-	60	-
Wed Dec 3	235	41	A lot of geese flying but very few hunters. Canada goose season closed outside the zone.
Thurs Dec 4	-	124	-
Fri Dec 5	100	131	A lot of plowing being done.
Sat Dec 6	-	298	-
Sun Dec 7	140	185	Harvest complete except for a few scattered corn fields.
Mon Dec 8	-	110	-
Tues Dec 9	70	114	Fed on trap sites for bait.
Wed Dec 10	-	112	-
Thurs Dec 11	70	87	Bait on trap sites.
Fri Dec 12	-	197	-
Sat Dec 13	-	186	Season closed.

A total of 13,985 bushels of grain were fed during this period and very satisfactorily accomplished our objective of prolonging the season until harvest could be completed. For all practical purposes the actual feeding program ended in late November. We kept on putting out some grain to keep geese coming to the feeding sites. By doing this we felt that if problems developed we could pour the grain to them and regain immediate control. We have found from past experience that if grain is placed in an area where the geese are not accustomed to finding it they will sometimes refuse to go near it. This is the reason we started with small amounts of grain at several locations at the start of this program.

This is the first time any actual feeding has been done here during the goose season. We were not fully convinced that we were in favor of it but felt that something had to be done to protect the farmers. We saw what could happen to crops that couldn't be harvested in 1967 under conditions not nearly as bad as they appeared to be this year. We received many favorable comments from people who will normally only remain quiet when satisfied and speak out only when in disagreement.

I can't see that this feeding program could have much affect on short-stopping the geese. Actually the feeding program was over before the time that the geese would normally go south, if such a time exists. The geese were under a lot of pressure during the last half of December from lack of food and extremely cold weather for this area. Some of them did move to the Missouri River, but that is as far as the bulk of them went. These have to be remarkably hardy birds as they seemingly are suffering little from the lack of food. There is still the question in my mind as to what affect all the stress these geese have been under will have on reproduction next year.

We still have 10-15,000 bushels of CCC corn stored in Sumner that we have not been permitted to feed. This will probably be turned back to the Commodity Credit Corporation.

## VI PUBLIC RELATIONS

### A. Recreational Use

Our recreational use was down from last year. Part of this is actually due to floods, wet weather and a shorter goose season, but part of it is the result of the changes in methods of reporting. The main use figures for 1968 were hunting 10,125, fishing 12,100, wildlife observation 57,000 for a total of 71,510 visits. The figures for 1969 were hunting 8,260, fishing 11,800, wildlife observation 38,390 for a total of 57,550 visits.

It was certainly a relief not to be designated as a L.W.C.F. fee area this year.

## B. Refuge visitors are listed on the following pages.

<u>Name</u>	<u>Organization</u>	<u>Purpose of Visit</u>	<u>Date</u>
George Pollard	Marceline, Missouri	Visit	1/10/69
Wayne Porath	M.D.C. Columbia, Mo.	Deer Survey	1/15
John Hague	FWS St. Joseph, Mo.	Information	1/23
Tim Joseph	Northwestern High School	Weather Records	1/28
Bruce Meek	MDC	Visit	1/29
Darrell E. Kopf	M.D.C.	Visit	1/29
Art Suchland	M.D.C.	Visit	1/29
Gerrald Cummings	FWS - Quincy, Ill.	Management	2/6
F. T. Holt	S.C.S. Columbia, Mo.	Visit	2/13
Max Mull	S.C.S. Brunswick, Mo.	Visit	2/13
Harold Burgess	FWS Squaw Creek	Meeting - Columbia	2/12
Leo Kirsch	FWS Woodworth, N. D.	Visit	2/20
John Hague	FWS St. Joseph, Mo.	Visit	3/7
Wayne Sanders	FWS Jefferson City	Pick up Eagle	3/17
Dr. Pernie	Michigan State	Tour - Photos	3/20
Allen Bodenschatz	MDC Brunswick	Goose Meeting	4/14
Jerry Cummings	FWS Quincy	Goose Meeting	5/14-15
Bob Barrett	Iowa Consv. Dept.	Goose Meeting	5/14
Dick Bishop	Iowa Consv. Dept.	Goose Meeting	5/14
Phil Morgan	FWS Minneapolis	Goose Meeting	5/14-15
Art Hawkins	FWS Minneapolis	Goose Meeting	5/14-15
George Brakhage	FWS Minneapolis	Goose Meeting	5/14-15
John R. Laugenbach	FWS Minneapolis	Goose Meeting	5/14-15
John Hague	FWS St. Joseph	Goose Meeting	5/14
Wayne Sanders	FWS Jefferson City	Goose Meeting	5/14-15
Harold Burgess	FWS Mound City	Goose Meeting	5/14-15
Bill Crawford	MDC Columbia	Goose Meeting	5/14-15
Dunbar Robb	MDC Jefferson City	Goose Meeting	5/14-15
Allen Brohn	MDC Jefferson City	Goose Meeting	5/14-15
Mike Milonski	MDC Jefferson City	Goose Meeting	5/14-15
Jim German	MDC Fountain Grove	Goose Meeting	5/14-15
Larry Soloman	MDC Fountain Grove	Goose Meeting	5/14-15
Jack Wallace	MDC Brookfield, Mo.	Goose Meeting	5/14-15
Jack Friesner	MDC Fountain Grove	Goose Meeting	5/14-15
Carl Rude	MDC Trenton, Mo.	Goose Meeting	5/14-15
Coval Gann	MDC Chillicothe	Goose Meeting	5/14-15
Clark Milligan	MDC Fountain Grove	Goose Meeting	5/14-15
Charles Guthrie	MDC Brookfield	Goose Meeting	5/14-15
Paul Doss	MDC Swan Lake	Goose Meeting	5/14-15
Karl Slagle	MDC Columbia	Goose Meeting	5/14-15
Dick Vaught	MDC Columbia	Goose Meeting	5/14-15
Coval Gann	MDC Chillicothe	Visit	5/21
Jack Wallace	MDC Brookfield	Visit	5/21
Dr. & Mrs E.J. Teeter	Goodland, Kansas	Acquiring and bequeathing land to Refuge System	6/3
Wayne Sanders	FWS Jefferson City	IHC Truck & Trailer	6/24
John Hague	FWS St. Joseph	Canada Goose Permit	6/26-27

<u>Name</u>	<u>Organization</u>	<u>Purpose of Visit</u>	<u>Date</u>
Lynn Coy	State Highway Patrol	Visit	7/9
John Hague	FWS St. Joseph	Law Enforcement	7/15
Allen Bodenschatz	MDC Brunswick, Mo.	Law Enforcement	7/16
Larry Campbell	Florida Game Dept.	Visit	8/4
Melvin A. Roweth	County Extension Agent	Chestnut Trees	8/5
Dr. Palm	Forrestry Pathologist	Chestnut Trees	8/5
Howard Thornsberry	FWS NPWRC	Visit	8/11
Allen Bodenschatz	MDC Brunswick	Law Enforcement	8/19
Wayne Sanders	FWS Jefferson City	Law Enforcement	8/19
Dick Vaught	MDC Columbia	1969 Goose Season	8/20
Jim German	MDC Fountain Grove	1969 Goose Season	8/20
Jack Friesner	MDC Swan Lake Mgt Area	1969 Goose Season	8/20
Steve Jeffries	MDC Swan Lake	1969 Goose Trapping	8/26
Karl Slagle	MDC Columbia, Mo.	1969 Goose Trapping	8/26
Allen Bodenschatz	MDC Brunswick, Mo.	Teal Survey	8/28
Charley Guthrie	MDC Brookfield	Teal Survey	8/28
Jack Wallace	MDC Brookfield	Fish	8/29
Dick Vaught	MDC Columbia	1969 Goose Season	9/19
Jim Gillette	FWS Mark Twain NWR	Goose Crates	9/30
Dick Basler	FWS St. Charles	Law Enforcement	10/1
Jack Wallace	MDC Brookfield	Future Tour	10/15
Max Hamilton	Chillicothe, Mo.	Visit	10/16
North East Mo. Peace Officers Accoc.	Approx 80 Officers	Tour	10/16
TV Staff	Channel 3 - Kirksville	Goose Pictures	10/17
Harold Terrill	MDC Jefferson City	Minni Milo	10/21
Glen Orton	FWS Mankato, Minn.	Goose Meeting	10/30
Phillip Morgan	FWS Minneapolis	Inspection	10/29-31
Wayne Sanders	FWS Jefferson City	Goose Meeting	10/30
Harold Hansen	Ill. N. History Survey	Goose Flock	10/31
Carl Noren	MDC Director	Tour Area	11/4
Robert Delaney	MDC Commissioner	Tour Area	11/4
John Stookey	ASCS - USDA	Goose Feeding	11/6
Ken Goodrich	ASCS - USDA	Photos - Goose Feeding	11/6
James L. Dale	ASCS- USDA	Goose Feeding	11/6
Arthur G. Tren	Fed. Housing Adm.	Quarters Survey	11/13
Charley Corthers	FWS Washington	Tour	11/13
Larry Williamson	Reeds Seeds, Inc.	Visit	11/25
Dave Umberger	R. O. Engineering	Flood Damage Report	11/26
Don L. Williams	Canadian Broadcasting	Film TV Special	12/2
Des Jakovac	Canadian Broadcasting	Film TV Special	12/2
James F. Keefe	MDC Info. Officer	Film TV Special	12/2
Dick Basler	FWS St. Charles	Bring Golden Eagle	12/4
Dick Vaught	MDC Columbia	Closing Goose Season	12/4



C. Refuge Participation

2/5	Timmerman	Talk to Rotary Club Mendon, Missouri. Forty guests.
2/15	Timmerman	Hike - 12 Boy Scouts from Mendon, Missouri.
2/16	Timmerman	Tour - 15 Boy Scouts from Columbia, Missouri.
2/13	Timmerman Kline	Missouri Game Conference - Columbia, Missouri.
2/26	Timmerman	Brookfield radio broadcast concerning opening of fishing season 3/1.
3/11-13	Kline Timmerman	Moist Soil Plant and Wood Duck Seminar Crab Orchard Refuge.
3/22	Kline	Dr. Elder and 40 Ornithology class members - Talk and tour.
3/23	Kline	Talk and tour - Wildlife Club University of Mo. 45 members.
3/23	Timmerman	Boy Scouts from Des Moines, Iowa - 35 members Talk and tour.
3/27	Timmerman	Judge at Northeast Missouri Science Fair
4/20	Timmerman	Summer Saddle Club - 15 members - trail ride on the refuge.
4/29	Kline	Summer Sportsman Club - Movie "So Little Time" to 50 members.
4/30	Timmerman Kline	Laclede, Missouri Head Start Program - 75 members Movie and tour.
5/1	Kline	Thirty Five Cub Scouts - Mendon, Mo. Movie
5/1	Kline	Radio Tape - Station KWIX "Sports Outdoors"
5/8	Kline	Moberly, Missouri
5/14-15	Kline Timmerman	State-Federal Annual Eastern Prairie Canada Goose Meeting. Twenty Eight present.
10/4	Timmerman	Twenty Two Girl Scouts and leaders from Carrollton, Missouri/ Talk and tour.
10/11		Open House - Approximately 1,500 people in 354 vehicles drove through refuge.
10/14	Timmerman	Forty Six from Laclede Head Start Program Talk and tour.

10/15	Lentz	Fifth grade from Brookfield Public School Talk and tour to 150 kids.
10/16	Timmerman	Northeast Missouri Peace Officers Talk and tour to 80 officers.
10/17	Timmerman	KTVO-TV Kirksville, Ottumwa TV show.
10/18	Timmerman	Ken Hubbard and Scouts from North Kansas City. Help handle geese.
10/19	Timmerman	Kansas City Star Photographer - pictures for special.
10/23	Timmerman	Thirty members of Tri-State Board of Production Credit Association. Talk and tour.
10/28	Lentz	Forty members from Marshall State School - Talk and tour.
11/5	Timmerman	Eight girl scouts from Brunswick - talk and tour.
11/7	Timmerman	Talk and tour to <del>eight</del> members Mississippi Dept. of Conservation employees.
11/11	Timmerman	TV Crew from Topeka, Kansas - cut tape and photos.
11/14	Lentz	Thirty members Marshall State School Talk and tour.
11/20	Timmerman	Talk to Lions Club - Brookfield, Mo. Approximately 15 members.

#### D. Hunting

The Canada goose season opened Monday, October 20 and ran 55 days through December 13. The daily bag limit was one Canada goose with a possession limit of four. The bag limit was cut from two to one by State regulation. The Canada goose quota for the Swan Lake Zone was 20,000. The actual calculated kill was 19,703 only 297 less than the quota.

The season opening was the quietest I have ever witnessed. Fewer geese were killed during the first two days than were killed the first day last year. Hunter numbers were down slightly because of the Monday opening, but were slightly above average for the first week. The pre-season population of geese was higher this year and there was far less food on the refuge. These two factors would cause you to expect a high kill, but the geese did not fly wildly as they do most years. There were very few immatures in the goose population and apparently the adult birds were wise enough to stay away from the guns.

However, after the first two or three days the kill usually drops off quite rapidly. This year the kill stayed high and it appeared that it was going to go higher because of the shortage of food.

It was decided to go into a feeding program before things got out of hand and the season closed before crops were harvested on private land. The fact that the kill did not get out of hand can be attributed to several factors. The feeding program played a big part in having some control of the harvest. Bright moonlight nights gave the birds a chance to feed out without facing the guns. The goose population composed primarily of adults was not as vulnerable to the guns.

The young to adult ratio in the bag was the lowest ever recorded here at Swan Lake. Samples taken at Hunting Area Headquarters, Fountain Grove Wildlife Area, and Bates Processing Plant all showed a ratio of less than 1/1 on opening day. This came as no real surprise to us as our pre-season trap sample revealed practically no young birds in the population. Usually by watching the age ratio of the birds in the bag you can detect when new migrants arrive by the increase in the number of young. There were no significant fluctuations this year indicating that the bulk of the geese were here when the season opened.

Just looking at the goose season as a whole, without taking other factors into consideration, the season must be considered as a success. The season ran for 55 days which is certainly a reasonable length. The average kill per hunter day on the hunting area was .54 which may be slightly high but not considered too bad. Crippling was not excessive when compare to a year when the geese are less wary.

It should be mentioned that there were very few complaints from the hunters concerning the feeding program. They knew what we were doing and why we were doing it.

An interesting thing to note is that as the season progressed, hunting pressure dropped off, and more crops were harvested many of these smart old geese flew over the areas in close to the refuge where the hunters persisted to feed several miles out. After the first half of the season closed outside the zone on December 3rd thousands of geese fed safely north of highway 36. We were concerned that a slaughter might take place in this area when the second half of the season opened, but it did not materialize. Very few hunters were out and within a few days the birds stayed within the zone.

The following tables were taken from the public hunting area report of operations.



SWAN LAKE DAILY WATERFOWL SHOOTING RECORD - 1969

<u>Date</u>	<u>No. of Hunters</u>	<u>Canada Geese</u>	<u>Blue &amp; Snow Geese</u>	<u>White-front Geese</u>	<u>Total</u>	<u>Cripples</u>	<u>Ave. Kill Per Hunter</u>
Oct. 20	209	182	5		187	9	.89
Oct. 21	195	163	4		167	16	.86
Oct. 22	189	161	2		163	16	.85
Oct. 23	190	152	7		159	14	.84
Oct. 24	182	149	5		154	13	.85
Oct. 25	203	135	2		137	20	.66
Oct. 26	207 <sup>1,375</sup>	130 <sup>1,072</sup>	4		134	10	.65
Oct. 27	181	121	2		123	10	.68
Oct. 28	198	126	13		139	12	.70
Oct. 29	192	112	17		129	6	.67
Oct. 30	184	131			131	9	.71
Oct. 31	190	118	8		126	20	.66
Nov. 1	204	136	6		142	18	.70
Nov. 2	198 <sup>1,347</sup>	109 <sup>853</sup>	22		131	16	.66
Nov. 3	180	112	7		119	15	.66
Nov. 4	187	90	1		91	11	.49
Nov. 5	165	108	1		109	15	.67
Nov. 6	184	104	8		112	14	.60
Nov. 7	180	101	5		106	10	.59
Nov. 8	193	83	1		84	6	.44
Nov. 9	185 <sup>1,274</sup>	71 <sup>669</sup>	2		73	6	.39
Nov. 10	167	82	3		85	5	.51
Nov. 11	167	94	2		96	10	.51
Nov. 12	177	80	2		82	9	.46
Nov. 13	169	68	1		69	7	.41
Nov. 14	119	47	1		48	5	.40
Nov. 15	168	59	1		60	2	.36
Nov. 16	141 <sup>1,108</sup>	57 <sup>487</sup>	2		59	10	.42
Nov. 17	115	68		1	69	7	.60
Nov. 18	148	64	3		67	14	.45



SWAN LAKE DAILY WATERFOWL SHOOTING RECORD - 1969

<u>Date</u>	<u>No. Of Hunters</u>	<u>Canada Geese</u>	<u>Blue &amp; Snow Geese</u>	<u>White-front Geese</u>	<u>Total</u>	<u>Cripples</u>	<u>Ave. Kill Per Hunter</u>
Nov. 19	115	58		1	59	6	.51
Nov. 20	139	57			57	9	.41
Nov. 21	96	26			26	8	.27
Nov. 22	154	48	2		50	10	.32
Nov. 23	152	919 40	361 1		41	6	.27
Nov. 24	70	19			19	4	.19
Nov. 25	94	8	1		9	5	.10
Nov. 26	90	13	1		14	2	.15
Nov. 27	146	39			39	6	.27
Nov. 28	159	35	1		36	6	.23
Nov. 29	150	26	1		27	1	.18
Nov. 30	110	819 13	153 3		16	7	.15
Dec. 1	74	16			16	4	.22
Dec. 2	48	21			21	7	.44
Dec. 3	31	15			15	0	.48
Dec. 4	70	47			47	4	.67
Dec. 5	76	48			48	2	.63
Dec. 6	132	83			83	7	.63
Dec. 7	79	510 49	279		49	8	.62
Dec. 8	64	34	2		36	4	.56
Dec. 9	59	36			36	4	.61
Dec. 10	65	44			44	3	.68
Dec. 11	72	20			20	8	.28
Dec. 12	90	38			38	4	.42
Dec. 13	156	506 42	214		42	12	.27
Total -	7,858	4,088	149	2	4,239	481	.54

Swan Lake Canada Goose Kill ----- 4,088  
 Fountain Grove Canada Goose Kill ----- 2,230  
 Estimated Outside Canada Goose Kill --- 13,385  
 Total Canada Goose Kill in Zone ----- 19,703  
 Harvest Quota For the 1969 Season ----- 20,000



COMPARISON OF SHOOTING DATA SINCE 1955

<u>Year</u>	<u>Length of Season</u>	<u>Peak Population</u>	<u>No. of Hunters</u>	<u>Canada Goose Kill on Area</u>	<u>Ave. Kill Per Hunter</u>	<u>Outside Kill</u>	<u>Bushels of Grain on Area</u>
1955	53 days	133,500 (10-26)	10,137	8,836	.87	3,727	11,500
1956	70 days	55,000 (11-5)	11,204	3,118	.27	1,140	27,500
1957	70 days	42,000 (11-4)	10,360	3,680	.35	1,075	30,000
1958	70 days	59,500 (10-27)	9,256	6,186	.66	3,410	14,500
1959	70 days	57,000 (10-16)	11,014	5,254	.47	2,425	35,000
1960	31 days	86,850 (10-17)	6,343	6,895	1.08	3,680	16,000
1961	25 days	75,000 (10-16)	3,483	3,356	.96	3,116	21,000
1962	60 days	118,000 (11-21)	9,609	5,506	.57	7,208	26,280
1963	70 days	130,225 (10-21)	9,954	5,890	.59	10,244	52,600
1964	55 days	121,450 (10-19)	9,164	9,069	.98	15,691	29,240
1965	70 days	119,350 (11-8)	10,313	4,624	.44	12,255	86,300
1966	39 days	138,000 (10-31)	6,933	8,015	1.15	18,605	69,000
1967	24 days	127,265 (11-12)	4,216	5,274	1.25	22,669	35,250
1968	70 days	137,500 (11-5)	10,123	5,747	.56	16,518	100,000
1969	55 days	110,200 (10-26)	7,858	4,088	.52	15,615	25,000



VIOLATIONS

<u>Type of Violation</u>	<u>Completed Cases</u>	<u>Total Fines</u>	<u>Court Cost</u>	<u>Pending</u>
Over 10 shell limit	21	\$ 430.00	\$ 231.00	4
Over limit of geese	5	125.00	55.00	0
Attempt to take over limit of geese	12	165.00	99.00	0
Shooting out of assigned blind	2	30.00	22.00	0
Non-resident using resident permit	9	225.00	99.00	0
Hunting on borrowed permit	3	110.00	33.00	2
Hunting on improper permit	2	50.00	22.00	0
Refuge trespass	3	80.00	33.00	1
Unplugged Shotgun	5	75.00	55.00	1
Hunting from unassigned blind	2	30.00	22.00	0
Shooting after closing time	<u>0</u>			<u>2</u>
	64	\$1,320.00	\$ 671.00	10

During the 1968 season (70 days) there were a total of 60 completed cases totaling \$1,113.00 in fines and \$660.00 in court costs and in 1967 (24 days) there were 79 completed cases totaling \$1,190.00 in fines and \$759.00 in court costs.

VI. OTHER ITEMS OF INTEREST

No accidents occurred during the season, however, one hunter died of an apparent heart attack while walking from his blind.

Once again I wish to express my sincere appreciation to all who assisted during the 1969 hunting season and to Bob Timmerman and his staff for their excellent cooperation throughout the year.

Respectfully Submitted,

*James A. German*

James A. German, Area Manager  
Missouri Department of Conservation  
Swan Lake Wildlife Management Area  
Sumner, Missouri.

December 22, 1969



NON-RESIDENT HUNTERS USING SWAN LAKE DURING 1969

<u>State</u>	<u>Individual Hunters</u>	<u>No. of Times Hunted</u>	<u>No. of Geese Killed</u>
Iowa	201	449	296
Illinois	148	226	146
Kansas	84	129	90
Minnesota	11	17	14
Ohio	4	5	6
Arkansas	6	6	4
Indiana	2	4	0
Wisconsin	7	17	12
Wyoming	2	4	3
Nebraska	4	10	7
Texas	3	3	2
Oklahoma	1	3	1
Pennsylvania	1	4	4
Maryland	1	1	1
Florida	3	3	1
Tennessee	4	4	1
Arizona	1	2	1
California	2	2	2
Virginia	1	1	0
Kentucky	1	1	1
Colorado	<u>1</u>	<u>1</u>	<u>0</u>
Totals	488	892	592

<u>Year</u>	<u>No. of Individual Non-Resident Hunters</u>
1969	488
1968	599
1967	333
1966	469
1965	523
1964	370
1963	332

E. Violations

Refuge personnel assisted State and Federal Game Management Agents on enforcement when time permitted and they were short of personnel. All except baiting cases are normally processed through State Court.

F. Safety

No lost time accidents occurred during the year. We now have 1,721 accident free days through December 31, 1969.

Safety meetings were held periodically throughout the year.

Roll bars and seat belts have now been installed on all tractors and open vehicles.

VII OTHER ITEMS

A. Transfer

On August 10, 1969 Assistant Manager Larry Kline transferred to Kern-Pixley refuge in California. We had come to rely a lot on Larry and greatly enjoyed the company of his entire family.

We miss him even more because we have not refilled his position because of lack of funds. Many things remain undone because of the vacancy.

B. Sale of Motel

The Goose Hill Lodge and waterfowl processing plant is no more. The buildings and contents were sold as two units on sealed bids which were opened October 24. Bill Thornsberry (Howards father) gave \$3,175 for the motel. John Bartow paid \$1,355 for the processing plant. The sale included a provision for removal and site clean-up except for foundation removal. Both buyers did a reasonably good job of complying.

C. Deaths

Regretfully we have two deaths to report on the refuge this year. The first was an 18 year old boy named Jim Still from Chillicothe who drowned while gigging jish in south pool. He was reportedly a good swimmer and was with three companions who also could swim. They were too far away to save him.

The second was a man in his 70's that died of a heart attack on October 29 while hunting in the C-Lane. I wish these people would be more careful as I hate making out form DI-134.



D. Credits For Preparation

Mr. Lentz compiled the visitor list, made out NR-1, typed and helped assemble the report. Mr. Timmerman wrote the remainder of the report, edited and helped assemble it.

E. Photographs

A few photographs from various sources are included. When we should be taking pictures we always seem to be too busy doing something else.

SIGNATURE PAGE

Submitted by:

Robert H. Timmerman

(Signature)

Robert H. Timmerman

Date: February 20, 1970

Refuge Manager

Title

Approved, Regional Office:

Date: 2-24-70

Phillip S. Morgan

(Signature)

Regional Refuge Supervisor

There have been a lot of different guards tried for wood duck boxes. Assistant Manager Kline tried this. He simply cut a 55 gallon barrel in half and put it over the post. It seemed to work. No, we had no wood duck use.

69-1





This is one of several slides on the Silver Lake levee that was repaired again this year. This levee was thrown up too wet without enough berm and it continues to give us problems.  
69-1

This is a view of Silver Lake levee from the lake side. Flood waters during June and July washed the levee above the rip-rap that was in place, and in some cases washed below the rip-rap allowing it to slide down. Some areas of the Swan Lake levee, which has never been rip-rapped, are eroded worse. 69-1



This eastern hog-nose was caught by the manager near the sandhill trap site on April 15. We kept him in protective custody through the mushroom season and planned to release him when these snake killers thinned out. However, we used him with several groups and response was so good it was mid-summer before he was released. He proved to be an almost tireless performer. The "dead snake" bit was never repeated after his initial capture, but he would always spread, hiss and usually pretend to strike. We kept him in the window well outside the office with plenty of damp leaf cover and an abundance of frogs. Incidentally, although the natural diet of toads was preferred, frogs were accepted if no toads were available.

R.H.T. - Personal





This is a fair catch of geese in two 30' x 60' nets on the White Barn trap site. The site is maintained by the State and is usually damaged considerably by wave action during the spring. This year it was built up using a rock base to eliminate or at least cut down on this maintenance cost.

Mike Armbruster - Personal

This is probably about an 800 bird catch in the three 40' x 60' nets on the Silo trap site. This year we used shelled corn for bait because it was available and we didn't want to harvest any of the limited crop for ear corn. The geese on the lake in the background were at the trap site when the cannons were fired. All they did was fly out a short distance and land to watch the operation.

Mike Armbruster - Personal



This adult golden eagle was brought in by G.M.A. Basler. It was held in the goose pen until goose season closed. On December 14 it had just been banded when this picture was taken.

Mike Armbruster - Personal

"I don't want to go." This was the reaction when we took him out on the refuge and opened the box. When he finally did decide to go, he flew to and landed in the tree that is visible over the manager's shoulder. This one we feel was completely recovered. No, I didn't lose the billfold, but it was close.

Mike Armbruster - Personal





WATERFOWL

REFUGE Swan Lake

MONTHS OF May TO August, 19 69

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:	5/4-10	5/11-17	5/18-24	5/25-31	6/1-7	6/8-14	5/15-21	6/22-28	6/29-7/5	7/6-12
Whistling										
Trumpeter										
Geese:										
Canada	200	200	200	200	200	200	200	200	200	200
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	100	100	50	20	20	20	20	20	20	20
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	200	200	100	20	20	20	20	20	20	20
Cinnamon teal										
Shoveler	100	100								
Wood	350	350	350	350	350	350	350	350	350	350
Redhead										
Ring-necked	50	25								
Canvasback										
Scaup	50	25								
Goldeneye										
Bufflehead										
Ruddy	50									
Other										
Coot:	100	50								

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Swan Lake

MONTHS OF May TO August, 19 69

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18		
Swans:	6/13-19	7/20-26	7/27-8/2	8/3-9	8/10-16	8/17-23	8/24-30			
Whistling										
Trumpeter										
Geese:										
Canada	200	200	200	200	200	200	200		23,500	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	20	20	20	20	30	50	100		4,550	
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	20	20	20	20	20	40	80		6,020	
Cinnamon teal										
Shoveler									1,400	
Wood	350	350	350	400	400	400	500		43,750	
Redhead										
Ring-necked									525	
Canvasback										
Scaup									525	
Goldeneye										
Bufflehead										
Ruddy									350	
Other										
Coots:									1,050	
					(over)					

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Lake shores and field borders.</u>
Geese	23,800	200	:	
Ducks	57,120	900	:	Principal nesting areas _____
Coots	1,050	100	:	
				Reported by <u>Robert H. Zimmerman</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

WATERFOWL

REFUGE Swan Lake

MONTHS OF September TO December, 19 62

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:	8/31-9/6	9/7-13	9/14-20	9/21-27	9/28-10/4	10/5-11	10/12-18	10/19-25	10/26-11/1	11/2-8
Whistling										
Trumpeter										
Geese:										
Canada	200	200	200	5,000	9,000	15,000	87,000	100,000	103,000	100,000
Cackling										
Brant										
White-fronted						100	300	100	20	20
Snow /										
Blue				20	150	500	2,500	7,000	7,000	11,000
Other										
Ducks:										
Mallard	120	200	400	600	1,000	1,200	15,000	30,000	40,000	55,000
Black								100	200	300
Gadwall						100	200	200	300	400
Baldpate	100	500	300	1,000	3,000	2,000	1,500	1,000	1,500	2,000
Pintail	400	300	500	1,000	7,000	8,000	10,000	12,000	6,000	4,000
Green-winged teal	100	400	600	1,500	2,000	4,000	6,000	7,000	7,000	5,000
Blue-winged teal	50	50	200	400	600	800	1,000	800	500	500
Cinnamon teal										
Shoveler		40	50	50	200	400	400	400	500	700
Wood	500	500	500	500	500	500	500	500	800	1,200
Redhead									50	50
Ring-necked									100	100
Canvasback									10,000	10
Scaup									40,000	100
Goldeneye										
Bufflehead										
Ruddy							10	20	30	40
Other										
Coot:		10	20	1,000	4,000	10,000	6,000	8,000	5,000	3,000



3-1751  
Form NR-1A  
(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)

Refuge Swan Lake Months of May to August 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great Blue Heron	Summer Resident		200	August						
Little Blue Heron	3	7/16	12	July						
Yellow Crowned Night Heron	2	7/8								
American Bittern	Summer Resident		25	August						
Least Bittern	Summer Resident									
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Summer Resident		300	8/31						
Upland Plover	Summer Resident		50	July						
Golden Plover	4	5/13								
Hudsonian Godwit	3	5/18								

(over)

[illegible]

## INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
II. Shorebirds, Gulls and Terns (Charadriiformes)  
III. Doves and Pigeons (Columbiformes)  
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

## UPLAND GAME BIRDS

Months of May to August, 1969

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob White									400	
Ring-necked Pheasant										Several sightings along the north and east boundary.
Greater Prairie Chicken										One pair observed in the field west of Pecan Grove on May 19. Several reports of sightings on the Merlin Clark farm. One sighting on the J. C. Dowell farm.



## INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.



(June 1945)

Refuge Snow LakeCalendar Year **1969**

### White-tailed Deer

Remarks:

Reported by Robert H. Timmerman

## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

WATERFOWL

REFUGE Swan Lake

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
	8/31-9/6	9/7-13	9/14-20	9/21-27	9/28-10/4	10/5-11	10/12-18	10/19-25	10/26-11/1	11/2-8
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	200	200	200	5,000	9,000	15,000	87,000	100,000	103,000	100,000
Cackling										
Brant										
White-fronted						100	300	100	20	20
Snow /										
Blue				20	150	500	2,500	7,000	7,000	11,000
Other										
Ducks:										
Mallard	120	200	400	600	1,000	1,200	15,000	30,000	40,000	55,000
Black								100	200	300
Gadwall						100	200	200	300	400
Baldpate	100	500	300	1,000	1,000	2,000	1,500	1,000	1,500	2,000
Pintail	400	300	500	1,000	7,000	8,000	10,000	12,000	6,000	4,000
Green-winged teal	100	400	600	1,500	2,000	4,000	6,000	7,000	7,000	5,000
Blue-winged teal	50	50	200	400	600	800	1,000	800	500	500
Cinnamon teal										
Shoveler		40	50	50	200	400	400	400	500	700
Wood	500	500	500	500	500	500	500	500	800	1,200
Redhead									50	50
Ring-necked									100	100
Canvasback									10,000	10
Scaup									40,000	100
Goldeneye										
Bufflehead										
Ruddy							10	20	30	40
Other										
Coot:		10	20	1,000	4,000	10,000	6,000	8,000	5,000	1,000

3-1750a  
Cont. NR-1  
(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE Swan Lake NWR

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total	
	11	12	13	14	15	16	17	18			
Swans:	11/9-15	11/16-22	11/23-29	11/30-12/6	12/7-13	12/14-20	12/21-27	12/28-1/3/70			
Whistling											
Trumpeter											
Geese:											
Canada	95,000	98,000	88,000	81,000	51,000	59,000	50,000	50,000	6,962,200		
Cackling											
Brant											
White-fronted									3,700		
Snow											
Blue	14,000	23,000	5,000	2,000		3,500			513,600		
Other											
Ducks:											
Mallard	55,000	60,000	50,000	35,000	20,000	11,000	5,000	200	2,679,000		
Black	100	100	100	100	100				14,000		
Gadwall	100	100	100	100					15,100		
Baldpate	1,000	1,000	800	500	100				121,100		
Pintail	2,000	1,000	500	200	200	100			104,100		
Green-winged teal	1,000	1,000	2,000	2,000	500	200	100		117,800		
Blue-winged teal	200	100							16,100		
Cinnamon teal											
Shoveler	500	500	100						26,800		
Wood	1,000	800	500	200					99,500		
Redhead	50	50							1,000		
Ring-necked	100	50	20						2,800		
Canvasback	10								110		
Scaup (Lesser)	100	100							202,100		
Goldeneye											
Bufflehead											
Ruddy	10	20	100						2,000		
C. Merganser						500	200		4,200		
Other											
Coots:	1,000	500	200						229,110		
					(over)						



	(5)	(6)	(7)	SUMMARY
	Total Days Use :	Peak Number :	Total Production	
Swans	:	:	:	Principal feeding areas <u>Corn and Milo fields - Trap Sites.</u>
Geese	<u>7,509,670</u>	<u>121,000</u>	:	
Ducks	<u>3,918,980</u>	<u>69,400</u>	:	Principal nesting areas _____
Coots	<u>229,110</u>	<u>10,000</u>	:	
				Reported by <u>Robert E. Timmerman</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751  
Form NR-1A  
(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)

Refuge Swan Lake

Months of September to December 1976

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
WHITE PELICAN	6	9/2	1,200	9/20						
Common Egret	1	9/10	20	9/25						
Great Blue Heron			100	9/20	1	12/31				
Sora Rail			20	9/15						
II. <u>Shorebirds, Gulls and Terns:</u>										
American Woodcock	4	9/2								
Ring-billed Gull					4	12/16				
No other unusual or uncommon observations.										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Summer Resident	1,000	Sept	30	12/31
IV. <u>Predaceous Birds:</u> Golden eagle <del>Spotted hawk</del> Bald Eagle Horned owl Magpie Raven Crow	Common Permanent Resident	4-5 60-70  90	Nov Nov - Dec  Dec		
No other unusual or uncommon observations.					
				Reported by Robert H. Timmerman	

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
II. Shorebirds, Gulls and Terns (Charadriiformes)  
III. Doves and Pigeons (Columbiformes)  
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750c  
Form NR-1C  
(Sept. 1960)

Waterfowl Hunter Kill Survey

Refuge Swan Lake

Year 196 9

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est.No. Hunters	(9) Est. Total Kill
10/20 - 26	1,375		Canada Geese	1,072			All Refuge hunters were checked.	
10/27-11/2	1,347			853				
11/3 - 9	1,274			669				
11/10 - 16	1,108			487				
11/17 - 23	919			361				
11/23 - 30	819			153				
12/1 - 7	510			279				
12/8 - 13	506			214				
TOTALS.....	7,856	39,000		4,088	481	4,239		

\* Crippling loss based on hunter reports, so is probably not reliable.

cc This figure includes 149 blue and snow geese plus two white-fronts that were harvested on the area.

(over)



### INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1752

Form NR-2

(April 1946)

## UPLAND GAME BIRDS

Refuge ~~Swan Lake~~

Months of **September** to **December**, 19 **69**

[illegible]

## INSTRUCTIONS

### Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

3-1753

Form NR-3

(June 1945)

## BIG GAME

Refuge Swan LakeCalendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed Deer												25	25	

Remarks:

Reported by Robert H. Timmerman



## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DISEASE

Refuge Swan Lake N.R. Year 19. 69

Botulism

Lead Poisoning or other Disease

Period of outbreak None

Period of heaviest losses \_\_\_\_\_

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease None

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

3-1757

Form NR-7

(Rev. June 1960)

## NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge

Swamp LakeYear 19 62

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
None													

(1) Report agronomic farm crops on Form NR-8

(2) C = Collections and R = Receipts

(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic

Hedgerows, cover patches

Food strips, food patches

Forest plantings

Remarks:

3-1758

Form NR-8

(Rev. Jan. 1956)

## Fish and Wildlife Service Branch of Wildlife Refuges

## CULTIVATED CROPS - HAYING - GRAZING

Refuge Swan LakeCounty CharitonState Missouri

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	58	2,300			325	21,000		Clovers	30
Mini-Milo					100	4,000		Wheat	2,035
TOTALS	58	2,300			425	25,000		(Waterfowl browsing crops)	
								Fallow Ag. Land	2,065

No. of Permittees: Agricultural Operations 2 Haying Operations \_\_\_\_\_ Grazing Operations \_\_\_\_\_

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				2,772
Hay - Wild				2. Acreage Cultivated as Service Operation				1,908



DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

# REFUGE GRAIN REPORT

Refuge Swan Lake

Months of January through December, 1969

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Shelled Corn	200	27,000	27,200			14,600	14,600	12,600		12,600	
Winter Wheat		2,760	2,760		2,000	400	2,400	360		360	

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at The wheat and about 2,000 bushels of corn at White Barn. The remainder of corn at Sumner elevator.

(10) Remarks 26,000 bushels of CCC corn. Remainder of corn and some wheat from Square Creek. Most wheat from

Clarence Cannon and De Soto.

\*See instructions on back.

## REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.



**ANNUAL REPORT OF PERSTICIDE APPLICATION**

Proposal Number

Reporting Year

**1969**

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
May - July	Giant Foxtail (Setaria sp.)	Corn Fields	600	Atrazine	600 lbs.	1 lb./acre	Water 7 Gal/A	Hand Spray
August 12-14	Army Worms	Late Corn	150	Sevin	150 lbs.	1 lb./acre	Water 10 Gal/A	Hand Spray

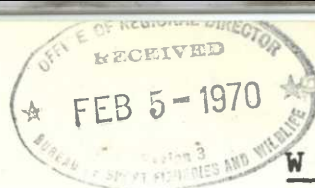
10. Summary of results (continue on reverse side, if necessary)

The atrazine spraying was quite successful. Due to wet conditions some fields were not cultivated but still produced a fair corn yield.

The sevin did help control the fall army worms. All fields that were sprayed did produce some feed. Fields that were not sprayed were a total loss.



3-1750  
Form NR-1  
(Rev. March 1953)



# WATERFOWL

REFUGE Swan Lake

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:	8/31-9/6	9/7 - 13	9/14-20	9/21 -27	9/28-10/4	10/5-11	10/12-18	10/19-25	10/26-11/1	11/2-8
Whistling Trumpeter										
Geese:										
Canada	200	200	200	5,000	9,000	15,000	87,000	100,000	103,000	100,000
Cackling										
Brant										
White-fronted						100	300	100	20	20
Snow /										
Blue				20	150	500	2,500	7,000	7,000	11,000
Other										
Ducks:										
Mallard	120	200	400	600	1,000	1,200	15,000	30,000	40,000	55,000
Black								100	200	300
Gadwall						100	200	200	300	400
Baldpate	100	500	300	1,000	3,000	2,000	1,500	1,000	1,500	2,000
Pintail	400	300	500	3,000	7,000	8,000	10,000	12,000	6,000	4,000
Green-winged teal	100	400	600	1,500	2,000	4,000	6,000	7,000	7,000	5,000
Blue-winged teal	50	50	200	400	600	800	1,000	800	500	500
Cinnamon teal										
Shoveler		40	50	50	200	400	400	400	500	700
Wood	500	500	500	500	500	500	500	500	800	1,200
Redhead									50	50
Ring-necked									100	100
Canvasback									<del>40,000</del>	10
Scaup									40,000	100
Goldeneye										
Bufflehead										
Ruddy							10	20	30	40
Other										
Coot:		10	20	1,000	4,000	10,000	6,000	2,000	5,000	3,000

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Swan Lake NWR

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total	
	11	12	13	14	15	16	17	18			
Swans:	11/9-15	11/16-22	11/23-29	11/30-12/6	12/7-13	12/14-20	12/21-27	12/28-1/3/70			
Whistling											
Trumpeter											
Geese:											
Canada	95,000	98,000	88,000	84,000	51,000	59,000	50,000	50,000	6,962,200		
Cackling											
Brant											
White-fronted									3,780		
Snow											
Blue /	16,000	23,000	5,000	2,000		3,500			543,690		
Other											
Ducks:											
Mallard	55,000	60,000	50,000	35,000	20,000	14,000	5,000	200	2,679,040		
Black	300	400	300	300	100				14,000		
Gadwall	400	300	200	100					15,400		
Baldpate	1,800	1,200	800	500	100				121,100		
Pintail	2,000	1,000	500	200	200	100			386,400		
Green-winged teal	4,000	4,000	2,000	1,000	500	200	100		317,800		
Blue-winged teal	200	100							36,400		
Cinnamon teal											
Shoveler	500	500	100						26,880		
Wood	1,000	800	500	200					59,500		
Redhead	50	50							1,400		
Ring-necked	100	50	20						2,590		
Canvasback	10								140		
Scaup (Lesser)	100	100							282,100		
Goldeneye											
Bufflehead											
Ruddy	40	50	100						2,030		
Other C. Merganser						500	100		4,200		
Coots:	1,000	500	200						229,110		
					(over)						

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Corn and Milo fields - Trap Sites.</u>
Geese	<u>7,509,670</u>	<u>121,000</u>	:	
Ducks	<u>3,948,980</u>	<u>69,400</u>	:	Principal nesting areas
Coots	<u>229,110</u>	<u>10,000</u>	:	
				Reported by <u>Robert H. Timmerman</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).



3-1751

Form NR-1A  
(Nov. 1945)

## MIGRATORY BIRDS

(other than waterfowl)

Refuge Swan LakeMonths of September to December 195 69

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
WHITE PELICAN	6	9/2	1,200	9/20						
Common Egret	1	9/10	20	9/25						
Great Blue Heron			100	9/10	1	12/31				
Sora Rail			20	9/15						
II. <u>Shorebirds, Gulls and Terns:</u>										
American Woodcock	4	9/2								
Ring-billed Gull					4	12/16				
No other unusual or uncommon observations.										

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Summer Resident	1,000	Sept	30	12/31
IV. <u>Predaceous Birds:</u> Golden eagle <del>Duck hawk</del> Bald Eagle Horned owl Magpie Raven Crow	Common Permanent Resident	4-5 60-70 50	Nov Nov - Dec Dec		12/31
No other unusual or uncommon observations.					
				Reported by Robert H. Timmerman	

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
II. Shorebirds, Gulls and Terns (Charadriiformes)  
III. Doves and Pigeons (Columbiformes)  
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

Waterfowl Hunter Kill Survey

Refuge Swan Lake

Year 196 9

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Weeks of	No. Hunters	Hunter	Waterfowl Species and Nos. of Each Bagged	Total	Crippling	Total	Est.No.	Est. Total	
Hunting	Checked	Hours		Bagged	Loss	Kill	Hunters	Kill	
10/20 - 26	1,375		Canada Geese	1,072			All Refuge hunters were checked.		
10/27-11/2	1,347			853					
11/3 - 9	1,274			669					
11/10 - 16	1,108			487					
11/17 - 23	919			361					
11/23 - 30	819			153					
12/1 - 7	510			279					
12/8 - 13	506			214					
TOTALS.....	7,856	39,000		4,088	481	4,239			

\* Crippling loss based on hunter reports, so is probably not reliable.

\*\* This figure includes 149 blue and snow geese plus two white-fronts that were harvested on the area.

(over)

## INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

80348-60

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Swan Lake

Months of September to December, 19 69

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob White									500	
Ringnecked Pheasant										Occasional sightings north of the refuge. None observed.
Greater Paririe Chicken										



## INSTRUCTIONS

### Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

3-1753

Form NR-3

(June 1945)

## BIG GAME

Refuge Swan LakeCalendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed Deer	Cover types, total Acreage of Habitat	Number										325	325	

Remarks:

Reported by Robert H. Timmerman

## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DISEASE

Refuge Swan Lake NWR Year 19 69

Botulism

Lead Poisoning or other Disease

Period of outbreak None

Period of heaviest losses \_\_\_\_\_

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
---------------------	---------------	-------------

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease None

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_



3-1757

Form NR-7

Rev. June 1960)

## NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge Swan LakeYear 19 69

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
None													

(1) Report agronomic farm crops on Form NR-8

(2) C = Collections and R = Receipts

(3) Use "S" to denote surplus

Remarks:

Total acreage planted:

Marsh and aquatic \_\_\_\_\_

Hedgerows, cover patches \_\_\_\_\_

Food strips, food patches \_\_\_\_\_

Forest plantings \_\_\_\_\_

3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Swan Lake County Chariton State Missouri

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	58	2,300			325	21,000		Clovers	30
Minni-Milo					100	4,000		Wheat	2,035
TOTALS	58	2,300			425	25,000		(Waterfowl browsing crops)	
								Fallow Ag. Land	2,065

No. of Permittees: Agricultural Operations 2 Haying Operations \_\_\_\_\_ Grazing Operations \_\_\_\_\_

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				2,772
Hay - Wild				2. Acreage Cultivated as Service Operation				1,908

102  
111  
DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

## REFUGE GRAIN REPORT

Refuge Swan Lake

Months of January through December, 1969

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Shelled Corn	200	27,000	27,200			14,600	14,600	12,600		12,600	
Winter Wheat		2,760	2,760		2,000	400	2,400	360		360	

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at The wheat and about 2,000 bushels of corn at White Barn. The remainder of corn at Sumner elevator.

(10) Remarks 26,000 bushels of CCC corn. Remainder of corn and some wheat from Squaw Creek. Most wheat from

\*See instructions on back. Clarence Cannon and De Soto.



## REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1969

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
May - July	Giant Foxtail (Setaria sp.)	Corn Fields	600	Atrazine	600 Lbs.	1 Lb/Acre	Water 7 Gal/A	Band Spray
August 12-14	Army Worms	Late Corn	150	Sevin	150 Lbs.	1 Lb/Acre	Water 10 Gal/A	Band Spray

10. Summary of results (continue on reverse side, if necessary)

The atrazine spraying was quite successful. Due to wet conditions some fields were not cultivated but still produced a fair corn yield.

The sevin~~it~~ did help control the fall army worms. All fields that were sprayed did produce some feed. Fields that were not sprayed were a total loss.